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Anterior segment pathology: A visual overview

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Abstract

Anterior segment pathology: A visual overview

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THESIS

ANTERIOR SEGMENT PATHOLOGY: A VISUAL OVERVIEW

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Acid Burn

Subjective:
-Severe ocular pain.
-Photophobia.
-Impaired visual acuity.

Objective:
-Chemosis.
-Injection with possible limbal blanching indicating ischemic necrosis.
-Denuded corneal epithelium.
-Corneal scarring.
-Decreased corneal transparency.
-Blepharospasm.
-Possible anterior uveitis.
-Possible posterior synechiae.

Assessment:
-Acid burns of the eye produce a relatively uniform clinical picture of a sharply demarcated area of damage. Since the corneal epithelium is immediately coagulated and opacified by contact with an acid, further penetration with an acid is slowed.
-Maximum damage occurs within the first few minutes to hours.

Plan:
-Copious irrigation with water untill p.H. paper reads between 7.3 and 7.7.
-Cycloplegics to prevent posterior synechiae.
-Antibiotics to prevent infection.
-Systemic analgesics for pain.
-Steroids to prevent anterior uveitis.

Slide 1

Alkaline Burn

Subjective:
- -Severe pain.
- -Watery eyes.
- -Loss of vision.

Objective:
- -Blepharospasms.
- -Epithelial erosion.
- -Corneal ulceration which may progress to perforation.
- -Posterior synechiae may form.
- -Possible symblepharons.
- -Rapid increase in intraocular pressure.

Assessment:
- -Alkaline burns are more severe than acid burns because of their rapid penetration through the cornea and anterior chamber. Permanent injury is determined by the duration of exposure and p.H. of the chemical as well as time lapsed before irrigation.

Plan:
- -Sustained lavage; minimum of 2000 cc over an hour.
- -Cycloplegics to minimize posterior synechiae.
- -Topical antimicrobials.
- -Limited use of steroids after corneal reepithelialization is complete.
- -Collagenase inhibitors are advocated to prevent corneal ulcers.
- -Carbonic anhydrase inhibitors to counter increase in intraocular pressure.

Slide 2

Anterior Uveitis (acute)

Subjective:
- -Painful red eye.
- -Photophobia.
- -Blurred vision.

Objective:
- -Conjunctival hyperemia.
- -Miotic pupil.
- -Circumcorneal flush.
- -Cells and flare in anterior chamber.
- -Muddy looking iris structure.
- -Fine keratic precipitates.
- -Hypopyon may develop.
- -Possible decrease in intraocular pressure.
- -Possible synechiae formation.

Assesment:
- -Anterior uveitis is an inflammation of the iris or iris and ciliary body.
- -The course of the disease is acute and prognosis is good.
- -In case of anterior uveitis that are bilateral, recurrent or refractory to treatment, a more extensive diagnostic evaluation should be considered. Possible etiologies include tuberculosis, sarcoid, syphilis, herpetic diseases and rheumatologic conditions.

Plan:
- -Cycloplegics to prevent posterior synechiae.
- -Topical steroids.
- -Systemic analgesics.

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Arcus Senilis
(aka Corneal Arcus)

Subjective:
- -No symptoms.

Objective:
- -Bilateral.
- -Peripheral, annular hazy gray ring of the cornea about 2mm in width and with a clear space between it and the limbus.

Assessment:
- -When present before age 50, hypercholesterolemia is usually present.
- -Could occur at any age, but is more common in the elderly.
- -Lipid droplets involve the entire corneal thickness but are more concentrated in superficial and deep layers, being relatively sparse in corneal stroma.

Plan:
- -No treatment is necessary, and there are no visual defects.
- -If present in a younger patient a full lipid panel should be done.

Atopic Keratoconjunctivitis

Subjective:
- Itching.
- Burning sensation.
- Photophobia.
- Tearing.

Objective:
- Conjunctival hyperemia and chemosis secondary to vascular dilation.
- Watery to stringy discharge.
- Occasional superficial punctate keratopathy.
- Bilateral.
- Mild papillary or follicular reaction may occur.

Assessment:
- May involve a specific allergen, such as the pollens, inhalants and other vegetable substances as well as dander and dust.
- Conjunctival scraping reveals eosinophils.
- DDX from viral infections via lack of adenopathy.

Plan:
- Remove allergen.
- Cold compresses.
- Topical decongestants.
- Topical antihistimines.
- Steroids, if needed.

Basal Cell Carcinoma

Subjective:
- Bump on lid or excoriation without associated pain.

Objective:
- Nodular, with a pearly surface and telangiectatic vessels.
- Some are indurated, umbilicated or flat.
- Most common on lower lids and medial canthal areas.

Assessment:
- Slow growing.
- 95% of lid carcinomas are of the basal cell type.
- Biopsy of the tumor is the only sure method of diagnosis.
- Occurs with exposure to sunlight.
- Metastatic spread of basal cell carcinomas is exceedingly rare.

Plan:
- Cryotherapy and radiation have been used but surgical excision that is histologically confirmed is the best method of treatment.

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Chalazion

Subjective: -Bump on lid with no associated pain.

Objective: -Localized, solid bump on upper or lower lid.

Assessment: -DDX from hordeolum by the absence of acute inflammatory signs.

Plan:
-Hot compresses bid for 6-10 weeks noting any any size decrease.
-May subside spontaneously.
-Possible incision may be necessary.

*If Chalazions recur in the same area, biopsy should be performed to rule out malignancy.

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Chlamydial Conjunctivitis
(aka Inclusion Conjunctivitis)

Subjective:
- -Photophobia.
- -Red eyes.
- -Mucopurulent discharge.
- -Foreign body sensation.

Objective:
- -Preauricular lymphadenopathy.
- -Follicles and papillae are seen especially in the lower tarsus.
- -Fine to coarse punctate epithelial keratitis may develop in the inferior half of the cornea.

Assessment:
- -Usually is associated with a genital or urinary tract infection.
- -It is usually an auto infection or transmitted by use of contaminated eye cosmetics.
- -This can be differentiated from trachoma by the absence of serious upper lid involvement.
- -Unilateral in 70% of the cases.

Plan:
- -Oral and topical tetracycline.

Corneal Dellen

Subjective:
- Essentially asymptomatic, may give rise to a slight burning sensation.

Objective:
- Oval, saucer-shaped excavation at the corneal periphery.
- Found at any location adjacent to an area of limbal elevation.

Assessment:
- Due to a localized break in the precorneal oily film layer of the tears secondary to elevation near the limbus. This elevation does not allow the lid to spread the oil film on the cornea in a normal fashion.
- May be seen in association with a limbal tumor, subconjunctival hemorrhage, pterygium or pinguecula.
- If dellen persists, corneal scarring may occur.

Plan:
- Eliminate perilimbal elevation, thus allowing corneal rehydration.
- May be transient (48 hours) or may be present for weeks.
- Ocular lubricants may help.

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Dacryoadenitis

Subjective:
- Painful swelling of upper temporal aspect of the eye.
- Unilateral.

Objective:
- Swelling and redness of outer one-third of superior lid.
- Lid has an S-shaped curvature.
- Upon lid eversion, lacrimal gland is visably swollen and red.
- Lid edema.

Assessment:
- This occurs as a complication of mumps, measles, infectious mononucleosis, sarcoid and a number of other systemic diseases.
- It may occur following inflammation of the lids, conjunctiva or after a penetrating injury to the lacrimal gland.
- The disease is associated with Mikulicz's syndrome which involves the salivary as well as lacrimal glands of middle-aged women.
- Dacryoadenitis rarely occurs, and often the diagnosis of the underlying etiology can be made by biopsy.

Plan:
- Systemic antibiotics.
- Treat underlying systemic condition.
- Incision may be necessary if pus collects in the gland under tension.

Dacryocystitis

Subjective:	-Localized painful swelling and tenderness in corner of the eye. -Unilateral. -Tearing.
Objective:	-Infection of lacrimal sac. -Possible cellulitis of overlying tissue. -Mucoid discharge. -Edema.
Assessment:	-Generally secondary to lacrimal sac obstruction. -DDX from other causes of acute superlative inflammation in the area like canaliculitis or acute ethomoid sinusitis.
Plan:	-Warm compresses. -Topical and systemic antibiotics. -Incision and drainage if there is abscess formation.

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Ectopia Lentis

Subjective:
-Sudden decrease in visual acuity.
-Monocular double vision.

Objective:
-Iridodonesis.
-Possible marked astigmatism.
-Possible iritis or glaucomatous reaction.

Assessment:
-Dislocation of lens due to weakened zonule fibers, trauma or any of the following diseases:
1) Homocystinura.
2) Marafan's syndrome.
3) Weill-Marchesani syndrome.

Plan:
-No treatment is immediately necessary unless an iritis or glaucomatous reaction results in which case, surgical repair is indicated.

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Epidemic Keratoconjunctivitis

Subjective:
-Moderate pain.
-Tearing.
-Photophobia.
-Red eyes.

Objective:
-Preauricular lymphadenopathy.
-Conjunctival hyperemia.
-Epithelial keratitis.
-Subepithelial infiltrates and opacities.
-Follicular conjunctivitis.

Assessment:
-Epidemic Keratoconjunctivitis is due to adenovirus 8 and 19.
-Cornea is affected in 5-14 days of initial onset.
-The conjunctivitis lasts for 3-4 weeks at most.

Plan:
-Good hygiene since the disease is highly communicable.
-Analgesics for patient comfort.
-Topical decongestants for symptomatic relief of inflammatory congestion.
-Cold compresses for patient comfort.

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Episcleritis

Subjective:
-Usually minimal discomfort.
-Redness of eyes.
-Lacrimation.
-Photophobia.

Objective:
-Simple episcleritis:
1) Unilateral in two-third's of the cases.
2) Vascular engorgement and edema of episclera.
3) Pink to purple eyeball.

-Nodular episcleritis:
1) Discrete nodular formation in area of redness.

Assessment:
-Rule out pinguecula.
-Etiology is unknown, but hypersensitivity reactions may play a role. Certain systemic diseases such as rheumatoid arthritis, syphilis and herpes zoster have been associated.

Plan:
-Condition is benign and self-limiting in 1-2 weeks.
-Steroids may be helpful in more symptomatic cases.

Foreign Body (Corneal)

Subjective:
- -Lacrimation.
- -Pain.
- -Photophobia.

Objective:
- -Slit lamp evaluation with sodium fluorescein will pick up de-epithelialized areas of the cornea.
- -Eye is usually red and irritated.

Assessment:
- -Complete slit lamp evaluation including sodium fluorescein staining and lid eversion is essential.
- -In cases of severe blepharospasm, it may be necessary to employ a topical anesthetic to aid in the examination.

Plan:
- -An antibiotic ointment such as polymixin B, bacitracin or gentamicin should be installed after removal of the foreign body.
- -If the eye damage is extensive, an eye bandage can be used to minimize movement of the lid over the injured area.
- -Careful examination of anterior chamber, iris and retina should be done.

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Fuch's Endothelial Dystrophy

Subjective:
-Blurring of vision occurring around the fifth to sixth decades of life.

Objective:
-Bilateral, central, sometimes asymmetric dew drop-like corneal guttata between Descemet's membrane and the endothelium.
-Possible corneal edema and epithelial breakdown due to failing endothelial functioning.

Assessment:
-Slowly progressive.
-Affects women more than men.

Plan:
-Early management consist of hypertonic ointment to decrease epithelial edema.
-Soft contact lens to decrease pain from broken epithelial bullae.

*Associated with higher than normal incidence of open angle glaucoma.

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Fungal Keratitis

Subjective:
- -Recent trauma to the eyes.
- -Possible decrease in visual acuity.
- -Red eye.

Objective:
- -Slowly developing keratitis showing a gray or dirty-white, dry, rough textured surface that often has elevated margins.
- -Hypopyon may develop.
- -Ulcers may develop with delicate irregular margins (hyphae).

Assessment:
- -Fungal ulcers may be opportunistic such as candida, fusarium and aspergillis.
- -Fungal infections must be considered in any persistant ulcer that does not respond to antibiotic therapy.

Plan:
- -Candida is best treated with Nystatin.
- -Hyphae-like organisms are best treated with Nytamicin.
- -Cycloplegics to prevent posterior synechiae.
- -Surgical treatment may be required should medical treatment fail.

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Giant Papillary Conjunctivitis

Subjective:
- Itching.
- Soft contact lens intolerance and instability.

Objective:
- Papillary hypertrophy primarly affecting the superior tarsal conjunctivia.

Assessment:
- Results from a chronic conjunctival inflammatory response to denatured proteins adherent to the anterior lens surface.

Plan:
- Discontinue or decrease use of soft contact contact lens wear.
- Topical antihistamine or vasoconstrictor preparations may provide symptomatic relief.
- Change to new lenses or another hydrocarbon formula.
- Change disinfectant method if presently using preservatives.

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Herpes Simplex

Subjective:
- -Fever blisters.
- -Watery discharge.
- -Lid lesions.
- -Swollen lymph nodes.

Objective:

-Primary:
1) Follicular conjunctivitis.
2) Lymphadenitis.
3) Possible ulcerative blepharitis.
4) Epithelial keratitis.
5) Subepithelial infiltrates.

-Secondary:
1) Dendritic or geographic ulceration of cornea.
2) Non-descript linear or oval epithelial defects with heaped-up borders.
3) Inflammatory reaction in stroma could lead to stromal vascularization.
4) Possible associated anterior uveitis.
5) Possible disciform keratitis.

Assessment:
- -90% of primary herpes is subclinical.
- -Primary herpes is self-limiting but establishes a foothold of herpes virus in the trigeminal ganglion that allows recurrence of the disease.
- -Disciform keratitis results from spontaneous penetration of viral antigen or following the improper use of steroids in treating geographic, dendritic or ulcerative keratitis.

Plan:

-Primary herpes:
1) Idoxuridine/Adenine Arabinoside.

-Secondary Herpes:
1) Mechanical debridement.
2) Trifluorothymidine.
3) Steroids.
4) Cycloplegics if anterior uveitus is present.

Hordeolum

Subjective: -Pain and tender lid margin.

Objective: -Unilateral.
-Localized eyelid edema.

Assessment: -When it affects the meibomian glands it is relatively large and is known as an internal hordeolum. The smaller and more superficial external hordeolum (sty) is an infection of Zeiss or Moll glands.
-DDX from chalazion via no pain associated.

Plan: -Warm compresses.
-Possible incision and drainage.
-Topical Sulfacetamide or an antibiotic prevents involvement with other glands.

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Keratoconus

Subjective:	-Gradual visual deterioration. -Bilateral but may be asymetrical. -Painless.
Objective:	-Distortion of the keratometric mires, retinoscopic and opthalmoscopic reflexes. -Indentation of the lower lid by the cornea when the patient looks down (Munson's sign). -Increase in amount and change in axis of astigmatism out of proportion to that normally expected. -As condition advances, vertical striae appear in the posterior stroma of the cornea. -Slit lamp reveals thinning of the corneal apex. -Epithelial infiltration with possible ferritin deposits at Bowman's layer (Fleischer's ring).
Assessment:	-Corneal perforation may occur in advance stages. -Uncertain etiology. -Progresses for several years before stabilizing.
Plan:	-Spectacles could be used until the point where visual acuity is unsatisfactory. -Hard lenses should be fit to retard progress and support the corneal apex. -Keratoplasty as a last resort.

Meibomianitis

Subjective:	-Chronically red and irritated eyes. -Slight but continuous discharge.
Objective:	-Meibomian gland orifices are prominent. -Cheesy yellow material can be expressed from the glands. -Usually occurs bilaterally. -Can be associated with a blepharitis. -Quick tear break-up time.
Assessment:	-Often occurs during or after the middle years of life. -DDX internal hordeolum via many bumps occurring on lids.
Plan:	-Warm compresses-chronic. -Expression of glands. -Artificial tears to support oil layer.

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Orbital Cellulitis

Subjective:
- -Pain on rotation of eye.
- -Restricted eye movement.
- -Possible fever.
- -Swollen lid and facial features.

Objective:
- -Proptosis of eye.
- -Conjunctival hyperemia and edema of lid.
- -Possible decrease in vision.
- -Possible change in pupil reaction.

Assessment:
- -May occur due to:
  1) Paranasal sinusitis infection.
  2) Trauma.

Plan:
- -Surgical drainage.
- -Systemic antibiotics.

-This is an ocular emergency.

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Paranaud's Oculoglandular Conjunctivitis

Subjective:	-Usually unilateral. -Patient was in contact with cats. -Low grade fever and malaise. -Red eye.
Objective:	-Large preauricular and submandibular lymphadenopathy. -Local granulomatous lesions possibly surrounded by follicles.
Assessment:	-Found most commonly in children who have been in intimate contact with cats.
Plan:	-Disease is self-limited in 2-3 months. -Possible excision of the conjunctival nodules.

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Pharyngoconjunctival Fever

Subjective:
-Sore throat.
-Fever.
-Bilateral red eyes (may start unilaterally).
-Tearing.

Objective:
-Preauricular lymphadenopathy.
-Non-purulent follicular conjunctivitis.

Assessment:
-Pharyngoconjunctival fever is usually caused by adenovirus 3 and 7.
-DDX from epidemic keratoconjunctivitis by lack of corneal involvement.

Plan:
-The disease is self-limiting, usually lasting about 10 days.
-Cold compresses.
-Astringents.
-Analgesics.
-Instruction in hygiene since the disease is highly communicable.

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Phthirus Pubis

Subjective:	-Intense itching. -Irritation.
Objective:	-Conjunctival redness. -Lice and nits on eyelashes and skin. -Possible follicular or papillary conjunctivitis may develop.
Assessment:	-Eyelids infected by Phthirus pubis. -Usually associated with poor hygiene, and infection of the other parts of the body.
Plan:	-Improve overall hygiene. -Remove nits and lice from all infected areas. -Vaseline on lashes and eyebrows. -Yellow oxide of mercury.

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Phlyctenular Keratoconjunctivitis

Subjective:
- -Tearing.
- -Irritation.
- -Itching.
- -Moderate to severe pain.
- -Photophobia.
- -Blepharospasm.

Objective:
- -Conjunctiva:
  1) White nodules in center of hyperemic area.
  2) Nodules become gray and soft.
- -Cornea:
  1) White nodule(s) at limbus.
  2) Necrosis.
  3) Ulceration.
  4) May travel towards center as an ulcer, infiltrate or as blood vessels (pannus).

Assessment:
- -DDX includes inflammed pinguecula, small pterygium, limbal corneal involvement by acne rosacea or limbal herpes simplex keratitis.
- -Generally accepted to be a delayed hypersensitivity reaction most commonly to staphylococcus toxins.

Plan:
- -Topical astringents.
- -Topical steroids.
- -Treat underlying problem (removal of antigen).

Pinguecula

Subjective: -Yellow bump on white part of eye.

Objective: -Yellow nodule on both sides of the cornea (more commonly on the nasal side) in the areas of the lid fissure.

Assessment:
- -Rarely increases in size with occasional inflammation.
- -Probably in response to environmental irritation.
- -Nodule consists of hyaline and elastic tissue.
- -Check corneal aspects for drying and possible dellen formation.

Plan: -Although typically requiring no therapy, intermittent inflammation is often decreased by topical decongestants or tear substitutes.

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Pterygium

Subjective:	-Red eye occurring more while exposed to environmental irritation.
Objective:	-Fleshy, bilateral, triangular encroachment of conjunctival tissue onto the cornea, usually on the nasal side. -Possible induced astigmatism.
Assessment:	-Pterygium represents a hyperplasia of conjunctival tissue. -Histologically, a pterygium is identical to a pinguecula with corneal involvement characterizing the former. -Usually associated with high levels of dust, wind and ultraviolet light.
Plan:	-Topical decongestants and artificial tears often decrease intermittent inflammation. -Wet cell treatment with artificial tears can cause growth to regress. -If threatens the pupillary zone, surgery is performed to eliminate the growth as a last resort.

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Preseptal Cellulitis

Subjective:
- Red, hot, swollen upper lid with associated pain.

Objective:
- Moderate swelling and inflammation of lid.

Assessment:
- Full motility and absence of pain on motion of eye.
- Absence of proptosis of eye and normal pupil reaction help distinguish Preseptal Cellulitis from Orbital Cellulitis.
- Location of cellulitis is anterior to orbital septum.
- It is usually caused by direct inoculation of a pathogenic organism following trauma or spread of infection from the face.
- Infrequently, an external or internal hordeolum may resolve into a diffuse lid cellulitis.

Plan:
- Hot compresses several times a day.
- Systemic antibiotics.
- Possible incision and drainage of the preceptal space.

***This is an ocular urgency.**

Scleritis

Subjective:
-Painful red eye, may be a deep boring ache.
-Photophobia.
-Tenderness.
-Lacrimation.

Objective:
-Nodular:
1) Purplish-bluish localized discoloration of sclera with involvement of episcleral and conjunctival tissue.
2) Elevated nodules are present.

-Diffuse:
1) Diffuse discoloration.

Assessment:
-95% of cases of scleritis are in the anterior portion of the sclera.
-Diffuse anterior scleritis occurs about 40% of the time while nodular anterior scleritis occurs about 45% of the time.
-DDX from glaucoma, iritis and episcleritis.
-Topical application of 1 drop of epinephrine, 1:1000, will constrict the superficial vessells but not the deeper involved vessells.
-Occurs more commonly in females.
-Has been associated with rheumatoid arthritis and herpes zoster opthalmicus.
-Frequently of unknown etiology.

Plan:
-Treat underlying systemic problem.
-Anti-inflammatory agents.

Seborrheic Blepharitis

Subjective:	-Burning and itching of eyes may occur. -Patient may be asymptomatic.
Objective:	-Hyperemia of lid margins. -Flakes and greasy scales surrounding the lashes.
Assessment:	-There is nearly always an associated seborrheic dermatitis of the scalp. -The foamy secretion along the lid margin is a sign of hypersecretion of the meibomian glands.
Plan:	-The scalp, eyebrows and lid margins must be kept clean by means of shampoo. -Scales must be removed with warm compresses and lid scrubs. -Broad spectrum antimicrobials in rare cases.

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Squamous Cell Carcinoma

Subjective: -Bump on lid without associated pain.

Objective:
-Small warty growth with a keratotic covering.
-Nodules may develop which ulcerate.
-Base of ulcer is indurated and hyperemic.
-Edge of ulcer is hard.

Assessment:
-Squamous cell carcinoma is highly invasive and may spread via the lymphatic system.
-Occurs in less than 5% of those diagnosised with lid carcinomas.
-Biopsy of the tumor is the only sure method of diagnosis.
-DDX from actinic keratoses and basal cell carcinomas.

Plan:
-Complete wide surgical excision that is histologically confirmed is the best method of treatment.

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Subconjunctival Hemorrhage

Subjective:	-Bright red eye induced by major, minor or no detectable trauma to the eye.
Objective:	-Striking flat, deep-red hemorrhage under the conjunctivia.
Assessment:	-Hemorrhage usually reabsorbs in 2-3 weeks.
Plan:	-The best treatment is reassurance. -Complete evaluation for any other damage from trauma.

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Syphilis (Congenital)

Subjective:
- -Pain.
- -Lacrimation.
- -Conjunctival injection.
- -Blurring of vision.

Objective:
- -Diffuse infiltrative inflammation of stroma with neovascularzation (interstial keratitis).
- -Usually bilateral.
- -Chorioretinitis, salt and pepper fundus.
- -Manifestations of syphilis aquired in utero include mental deficiency, saddle nose, notched incisiors, rhinitis and deafness.

Assessment:
- -Manifestations of the keratitis are usually not apparent until after age 10, with the greatest frequency between the ages of 10 and 20.
- -Evidence indicates that the condition is an immunologic reaction to Treponema pallidum.
- -Disease process demonstrates a 3:1 predilection for females.
- -Diagnosis includes:
  1) VDRL test.
  2) Treponema immobolization test.
  3) FTA-ABS test.

Plan:
- -Large doses of penicillin.

Toxic Conjunctivitis

Subjective:
- -Dry, irritated eyes.
- -Foreign body sensation.
- -Swollen or itchy eyes.

Objective:
- -Skin around eyelids become dry and scaly.
- -Conjunctival thickening.
- -Follicular formation may occur.
- -Superficial punctate keratopathy.

Assessment:
- -Keratinized epithelial cells, a few polymorphonuclear cells and possibly eosinophils will be present in conjunctival scraping.
- -An infiltrative nonspecific conjunctivitis followed by possible scarring is produced by prolonged contact with a variety of different substances; such as miotics, eye make-up and airborne irritants.

Plan:
- -Remove substances or change drug.
- -Cool compresses.
- -Artificial tears.

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Trachoma

Subjective:
- -Tearing.
- -Photophobia.
- -Pain.
- -Discharge.

Objective:
- -Usually bilateral.
- -Lid edema.
- -Conjunctivia:
  1) Chemosis.
  2) Hyperemia.
  3) Papillary hypertrophy.
  4) Superior tarsal and limbal follicles giving way to tarsal papillary hypertrophy and scarring as disease progresses.
  5) Conjunctival scarring.
- -Cornea:
  1) Epithelial and subepithelial keratitis of the superior cornea.
  2) Superficial vascularization.
  3) Pannus

Assessment:
- -All of the signs of trachoma most often affect the upper half of the cornea and conjunctivia but are not limited to this area.
- -The causative organism is Chlamydia trachomatis.
- -Limbal follicles and the cicatricial remains of the follicles, known as Herbert's Pits, may be seen.

Plan:
- -Systemic and topical tetracycline or erythromycin.

Ulcerative Blepharoconjunctivitis

Subjective:

- -Matting of the lids upon awakening (especially with acute blepharo-conjunctivitis).
- -Tender lid margin.
- -Photophobia.

Objective:

- -Acute:
  1) Hyperemia of the lid margin.
  2) Mucopurulent discharge.
  3) Golden yellow crusty scales around lashes (Collarettes).

- -Chronic:
  1) Greater than 16 days.
  2) Usually a low grade inflammation with mild mucopurulent discharge.
  3) Occasionally associated are trichiasis, poliosis and madarosis.
  4) Possible marginal corneal ulcers and infiltrates.
  5) Phyctens may form.
  6) Superficial punctate keratitis especially over the lower third of the cornea.

Assessment:

- -Staphylococcus aureus is the most common cause of Ulcerative Blepharoconjunctivitis.

Plan:

- -Warm compresses.
- -Lid scrubs with baby shampoo.
- -Short term antibiotics (sulfacetamide) if needed.

Vernal Keratoconjunctivitis

Subjective:
- -Intense itching.
- -Seasonally recurrent.
- -Mucoid discharge.
- -Tearing.
- -Photophobia.
- -Bilateral.

Objective:

-Palpebral form:
1) Marked papillary hypertrophy of superior tarsal conjunctivia.
2) Stringy discharge.

-Limbal form:
1) Thickened, broad gelatinous opacifications around limbus.
2) Papillae development within thickened limbus.
3) Whitish chalk-like dots (Tranta's Dots) within raised area often within papillae.
4) Epithelial keratitis with punctate stippling of the corneal epithelium.

Assessment:
- -Conjunctival scrappings showing prominent eosinophils.

Plan:
- -Remove allergen by filtering air.
- -Cold compresses.
- -Topical steroids.
- -Topical astringents.
- -Topical antihistimines.
- -Move to cooler climate.

Zoster Ophthalmicus

Subjective:
- -Severe pain on one side of the face.
- -Fever.
- -Malaise.
- -Vesicles on the forehead and eyelids that do not cross the midline.
- -Watery eyes.

Objective:
- -Conjunctivitis.
- -Possible scleritis, keratitis, iridocyclitis and glaucoma.
- -Chorioretinitis, extraocular muscle palsies and optic neuritis may also be seen.
- -Vesicles contain clear fluid which rapidly becomes purulent.
- -Regional lymphadenopathy.
- -It is always unilateral.

Assessment:
- -Infection with herpes zoster virus is characterized by the appearance of vessicles upon the skin along the course of a nerve. The virus has a predilection for the gassarian ganglion and the first 2 divisions of the fifth cranial nerve.

Plan:
- -Treatment is directed towards protecting the exposed cornea and combating secondary infection.
- -Topical steroids.
- -Idoxuridine or Vidarabine.
- -Analgesics for pain.
- -Antibiotics if ulcerative keratitis is present.

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